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2012

### Test 2021: John Deere 7200R

Nebraska Tractor Test Laboratory

*University of Nebraska-Lincoln*, [tractortestlab@unl.edu](mailto:tractortestlab@unl.edu)

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# NEBRASKA OECD TRACTOR TEST 2021–SUMMARY 820

## JOHN DEERE 7200R AUTOQUAD PLUS DIESEL

### 20 SPEED

#### POWER TAKE-OFF PERFORMANCE

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Mean Atmospheric Conditions
MAXIMUM POWER AND FUEL CONSUMPTION					
Rated Engine Speed—(PTO speed—1067 rpm)					
169.95 (126.73)	2099	10.27 (38.89)	0.425 (0.259)	16.54 (3.26)	
Standard Power Take-off Speed (1000 rpm)					
190.62 (142.14)	1967	11.02 (41.72)	0.407 (0.247)	17.30 (3.41)	
Maximum Power (1 hour)					
197.02 (146.92)	1749	11.06 (41.86)	0.395 (0.240)	17.81 (3.51)	

#### VARYING POWER AND FUEL CONSUMPTION

169.95 (126.73)	2099	10.27 (38.89)	0.425 (0.259)	16.54 (3.26)	Air temperature
147.90 (110.29)	2153	9.35 (35.39)	0.445 (0.270)	15.82 (3.12)	77°F (25°C)
111.00 (82.77)	2162	7.71 (29.18)	0.489 (0.297)	14.40 (2.84)	Relative humidity
74.40 (55.48)	2172	6.01 (22.75)	0.568 (0.346)	12.38 (2.44)	33%
36.98 (27.58)	2181	4.13 (15.63)	0.785 (0.478)	8.95 (1.76)	Barometer
2.50 (1.86)	2190	2.91 (11.03)	8.196 (4.985)	0.86 (0.17)	28.75" Hg (97.36 kPa)

Maximum torque - 635 lb.-ft. (861 Nm) at 1599 rpm

Maximum torque rise - 49.3%

Torque rise at 1698 engine rpm - 44%

Power increase at 1749 engine rpm - 15.9%

#### DRAWBAR PERFORMANCE

#### UNBALLASTED - FRONT DRIVE ENGAGED

#### FUEL CONSUMPTION CHARACTERISTICS

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp. °F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
Maximum Power—7th (B3) Gear									
154.77 (115.41)	11127 (49.50)	5.22 (8.39)	2100	1.9	0.464 (0.283)	15.16 (2.99)	204 (95)	54 (12)	28.74 (97.33)
75% of Pull at Maximum Power—7th (B3) Gear									
119.05 (88.77)	8282 (36.84)	5.39 (8.67)	2157	1.5	0.514 (0.312)	13.70 (2.70)	206 (96)	68 (20)	28.69 (97.16)
50% of Pull at Maximum Power—7th (B3) Gear									
80.60 (60.10)	5547 (24.67)	5.45 (8.77)	2168	1.0	0.576 (0.351)	12.20 (2.40)	208 (98)	69 (20)	28.69 (97.16)
75% of Pull at Reduced Engine Speed—10th (C2) Gear									
118.94 (88.69)	8229 (36.60)	5.42 (8.72)	1631	1.5	0.450 (0.274)	15.62 (3.08)	203 (95)	70 (21)	28.68 (97.12)
50% of Pull at Reduced Engine Speed—10th (C2) Gear									
80.81 (60.26)	5524 (24.57)	5.49 (8.83)	1644	1.0	0.475 (0.289)	14.81 (2.92)	205 (96)	69 (21)	28.69 (97.16)

**Location of tests:** Nebraska Tractor Test Laboratory, University of Nebraska, Lincoln, Nebraska 68583-0832

**Dates of tests:** April 26 - May 15, 2012

**Manufacturer:** John Deere Tractor Works, 3500 East Donald Street, P.O. Box 270, Waterloo Ia, 50704-0270

**FUEL, OIL and TIME:** Fuel No. 2 Diesel Specific gravity converted to 60°/60°F (15°/15°C) 0.8448 Fuel weight 7.034 lbs/gal (0.843 kg/l) Oil SAE 15W-40 API service classification CJ-4 Transmission and hydraulic lubricant John Deere Hy-Gard fluid Front axle lubricant John Deere Hy-Gard fluid Total time engine was operated: 21.0 hours

**ENGINE:** Make John Deere Diesel Type six cylinder vertical with two turbochargers and air to air aftercooler Serial No.\*PE6068R003901\* Crankshaft lengthwise Rated engine speed 2100 Bore and stroke 4.19x5.00" (106.5 mm x 127.0 mm) Compression ratio 17.2 to 1 Displacement 414 cu in (6788 ml) Starting system 12 volt Lubrication pressure Air cleaner two paper elements and aspirator Oil filter one full flow cartridge Oil cooler engine coolant heat exchanger for crankcase oil, radiator for hydraulic and transmission oil Fuel filter one paper element and prestrainer Fuel cooler radiator for pump return fuel Muffler vertical Cooling medium temperature control 2 thermostats and variable speed fan

**ENGINE OPERATING PARAMETERS:** Fuel rate: 69.0 - 74.7 lb/h (31.3 - 33.9 kg/h) High idle: 2150 - 2250 rpm Turbo boost: nominal 23.9 - 26.8 psi (165 - 185 kPa) as measured 25.5 psi (176 kPa)

**CHASSIS:** Type front wheel assist with duals Serial No.\*1RW7200RECA005124\* Tread width rear 60.0" (1524 mm) to 128.9" (3272 mm) front 60.0" (1524 mm) to 88.0" (2235 mm) Wheelbase 115.2" (2925 mm) Hydraulic control system direct engine drive Transmission selective gear fixed ratio with partial (4) range operator controlled power shift Nominal travel speeds mph (km/h) first 1.74 (2.80) second 2.09 (3.37) third 2.51 (4.03) fourth 3.07 (4.94) fifth 3.68 (5.93) sixth 4.43 (7.14) seventh 5.31 (8.55) eighth 5.86 (9.43) ninth 6.51 (10.47) tenth 7.06 (11.36) eleventh 8.45 (13.60) twelfth 10.35 (16.66) thirteenth 10.85 (17.46) fourteenth 13.06 (21.03) fifteenth 15.65 (25.18) sixteenth 19.17 (30.85) seventeenth 19.80 (31.86) eighteenth 23.84 (38.37) nineteenth 26.72 (43.00) twentieth 26.72 (43.00) electronically limited reverse 1.81 (2.92), 2.18 (3.51), 2.61 (4.21), 3.20 (5.15), 3.84 (6.18), 4.63 (7.45), 5.54 (8.91), 6.11 (9.84), 6.79 (10.93), 7.36 (11.85), 8.82 (14.19), 10.81 (17.39), 11.32 (18.22), 13.63 (21.94), 16.33 (26.28), 20.00 (32.19), 20.66 (33.25), 24.87 (40.03), 26.72 (43.00), 26.72 (43.00) electronically limited

# **DRAWBAR PERFORMANCE** **UNBALLASTED - FRONT DRIVE ENGAGED-2100 RPM** **MAXIMUM POWER IN SELECTED GEARS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)	Temp.°F (°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
3rd(A3) Gear									
128.53 (95.84)	20642 (91.82)	2.34 (3.76)	2153	9.3	0.528 (0.321)	13.31 (2.62)	205 (96)	60 (16)	28.49 (96.48)
4th(A4) Gear									
144.40 (107.68)	18620 (82.82)	2.91 (4.68)	2099	5.5	0.501 (0.305)	14.04 (2.77)	208 (98)	62 (17)	28.48 (96.44)
5th(B1) Gear									
151.30 (112.82)	15955 (70.97)	3.56 (5.72)	2100	3.7	0.476 (0.290)	14.78 (2.91)	209 (98)	68 (20)	28.47 (96.41)
6th(B2) Gear									
151.95 (113.31)	13150 (58.49)	4.33 (6.97)	2100	2.5	0.474 (0.289)	14.83 (2.92)	201 (94)	55 (13)	28.75 (97.36)
7th(B3) Gear									
154.77 (115.41)	11127 (49.50)	5.22 (8.39)	2100	1.9	0.464 (0.283)	15.16 (2.99)	204 (95)	54 (12)	28.74 (97.33)
8th(C1) Gear									
151.82 (113.21)	9872 (43.91)	5.77 (9.28)	2100	1.7	0.474 (0.288)	14.85 (2.92)	203 (95)	56 (13)	28.76 (97.39)
9th(B4) Gear									
150.07 (111.90)	8764 (38.98)	6.42 (10.33)	2099	1.5	0.483 (0.294)	14.56 (2.87)	204 (95)	53 (12)	28.74 (97.33)
10th(C2) Gear									
150.21 (112.01)	8083 (35.95)	6.97 (11.22)	2100	1.4	0.479 (0.291)	14.68 (2.89)	204 (96)	58 (14)	28.75 (97.36)
11th(C3) Gear									
151.57 (113.02)	6788 (30.19)	8.38 (13.48)	2100	1.2	0.477 (0.290)	14.74 (2.90)	208 (98)	60 (16)	28.74 (97.33)

TRACTOR SOUND LEVEL WITH CAB	Front Wheel Drive	
	Engaged dB(A)	Disengaged dB(A)
At no load in 6th (B2) gear	68.1	68.2
Transport speed - no load - 19th (E3) gear		70.2
Bystander in 19th (E3) gear		84.1

## **TIRES AND WEIGHT**

**Rear Tires** - No., size, ply & psi(kPa)  
**Front Tires** - No., size, ply & psi(kPa)  
**Height of Drawbar**  
**Static Weight with operator** - Rear  
- Front  
- Total

## **Tested Without Ballast**

Four 480/80R46;\*\*\*;12(85)  
Two 16.9R30;\*\*\*;15(105)  
19.0 in (485 mm)  
14025 lb (6362 kg)  
7340 lb (3329 kg)  
21365 lb (9691 kg)

**Clutch** wet multiple disc hydraulically actuated by foot pedal **Brakes** wet multiple disc hydraulically operated by two foot pedals that can be locked together **Steering** hydrostatic **Power take-off** 540 rpm at 1967 engine rpm or 1000 rpm at 1967 engine rpm Economy PTO 540 or 1000 rpm at 1760 engine rpm **Unladen tractor mass** 21190 lb (9612 kg)

**REPAIRS AND ADJUSTMENTS:** No repairs or adjustments.

**NOTE 1:** During testing the engine was operated for 21.0 hours. During this period, the tractor experienced one active exhaust filter cleaning while operated in Auto Filter Cleaning Mode. This occurred after 16.5 hours of operation.

**NOTE 2:** The manufacturer declared that the active exhaust filter cleanings consume an average of 0.04 gal/hr (0.15 l/hr) across total tractor use. Fuel consumed during the active exhaust filter cleanings will normally be less than 1% of the total fuel consumed. The manufacturer declared that no active exhaust filter cleanings occurred during 12 hours of continuous operation of the tractor in the Auto Filter Cleaning Mode at 30% loading and the engine speed at which the maximum torque occurs.

**REMARKS:** All test results were determined from observed data obtained in accordance with official OECD, SAE and Nebraska test procedures. For the maximum power tests the fuel temperature at the injection pump inlet was maintained at 129°F (54°C). The pull in 3<sup>rd</sup> (A3) gear was limited to avoid excessive tractor power hop. The performance figures on this summary were taken from a test conducted under the OECD Code 2 test procedure.

We, the undersigned, certify that this is a true and correct report of official Tractor Test No. **2021**, Nebraska Summary 820, October 2, 2012.

Roger M. Hoy  
Director

M.A. Hanna  
P.J. Jasa  
J.D. Luck  
Board of Tractor Test Engineers

**DRAWBAR PERFORMANCE**  
**UNBALLASTED - FRONT DRIVE ENGAGED - 1750 RPM**  
**MAXIMUM POWER IN SELECTED GEARS**

Power Hp (kW)	Drawbar pull lbs (kN)	Speed mph (km/h)	Crank- shaft speed rpm	Slip %	Fuel Consumption lb/hp.hr (kg/kW.h)	Fuel Consumption Hp.hr/gal (kW.h/l)	Temp.°F(°C) cool- ing med	Air dry bulb	Barom. inch Hg (kPa)
3rd(A3)Gear									
128.68 (95.96)	20651 (91.86)	2.34 (3.76)	2152	9.2	0.527 (0.320)	13.36 (2.63)	204 (95)	60 (16)	28.49 (96.48)
4th(A4)Gear									
148.86 (111.00)	20204 (89.87)	2.77 (4.45)	2050	8.0	0.504 (0.307)	13.95 (2.75)	209 (98)	62 (17)	28.49 (96.48)
5th(B1)Gear									
166.72 (124.32)	19828 (88.20)	3.15 (5.07)	1935	7.3	0.474 (0.288)	14.84 (2.92)	212 (100)	69 (21)	28.46 (96.38)
6th(B2)Gear									
174.31 (129.98)	18708 (83.22)	3.49 (5.62)	1750	5.7	0.450 (0.274)	15.64 (3.08)	215 (101)	71 (21)	28.46 (96.38)
7th(B3)Gear									
179.09 (133.54)	15687 (69.78)	4.28 (6.89)	1750	3.5	0.434 (0.264)	16.20 (3.19)	202 (94)	53 (12)	28.74 (97.33)
8th(C1)Gear									
178.54 (133.13)	14070 (62.59)	4.76 (7.66)	1751	2.8	0.437 (0.266)	16.11 (3.17)	209 (98)	57 (14)	28.76 (97.39)
9th(B4)Gear									
178.75 (133.29)	12643 (56.24)	5.30 (8.53)	1751	2.3	0.437 (0.266)	16.11 (3.17)	205 (96)	55 (13)	28.75 (97.36)
10th(C2)Gear									
179.50 (133.85)	11672 (51.92)	5.77 (9.29)	1750	2.1	0.437 (0.266)	16.10 (3.17)	209 (98)	59 (15)	28.74 (97.33)
11th(C3)Gear									
180.44 (134.55)	9749 (43.37)	6.94 (11.17)	1750	1.7	0.435 (0.265)	16.17 (3.19)	209 (98)	61 (16)	28.73 (97.29)
12th(C4)Gear									
176.63 (131.71)	7760 (34.52)	8.54 (13.74)	1750	1.3	0.443 (0.269)	15.89 (3.13)	211 (99)	61 (16)	28.74 (97.33)

## Shiftable PTO Performance

### Economy mode

1000 PTO rpm @ 1760 engine rpm

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)
190.10 (141.76)	1759	10.37 (39.27)	0.384 (0.234)	18.32 (3.61)
142.80 (106.49)	1760	8.11 (30.72)	0.400 (0.243)	17.60 (3.47)
94.92 (70.78)	1760	5.97 (22.58)	0.442 (0.269)	15.91 (3.13)
47.27 (35.25)	1760	3.56 (13.46)	0.529 (0.322)	13.29 (2.62)
2.20 (1.64)	1760	1.92 (7.25)	6.127 (3.730)	1.15 (0.23)

### Normal mode

1000 PTO rpm @ 1967 engine rpm

Power HP (kW)	Crank shaft speed rpm	Gal/hr (l/h)	lb/hp.hr (kg/kW.h)	Hp.hr/gal (kW.h/l)
190.30 (141.91)	1968	11.00 (41.62)	0.406 (0.247)	17.31 (3.41)
142.70 (106.41)	1970	8.45 (31.97)	0.416 (0.253)	16.90 (3.33)
95.00 (70.84)	1970	6.33 (23.95)	0.468 (0.285)	15.02 (2.96)
47.22 (35.21)	1970	3.88 (14.70)	0.579 (0.352)	12.16 (2.39)
2.20 (1.64)	1971	2.45 (9.29)	7.845 (4.776)	0.90 (0.18)

## HYDRAULIC PERFORMANCE

CATEGORY: III

Quick Attach: Yes

OECD Static test

Maximum force exerted through whole range:

lift cylinders

12408 lbs (55.2 kN) (2 x 90 mm)

15324 lbs (68.2 kN) (2 x 100 mm)

45 cc pump

63 cc pump

85 cc pump

i) Sustained pressure at compensator cutoff:

2944 psi (203 bar)

2927 psi (202 bar)

2943 psi (203 bar)

three outlet sets combined

ii) Pump delivery rate at minimum pressure and rated engine speed:

36.0 GPM (136.4 l/min)

47.2 GPM (178.5 l/min)

62.4 GPM (236.2 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

34.9 GPM (132.3 l/min)

46.3 GPM (175.3 l/min)

61.6 GPM (233.3 l/min)

Delivery pressure:

2815 psi (194 bar)

2661 psi (183 bar)

2542 psi (175 bar)

Power:

57.4 HP (42.8 kW)

71.9 HP (53.6 kW)

91.4 HP (68.1 kW)

single outlet set

ii) Pump delivery rate at minimum pressure and rated engine speed:

35.6 GPM (134.8 l/min)

39.0 GPM (147.4 l/min)

38.4 GPM (145.5 l/min)

iii) Pump delivery rate at maximum

hydraulic power:

35.3 GPM (133.6 l/min)

38.3 GPM (145.1 l/min)

38.0 GPM (143.8 l/min)

Delivery pressure:

2364 psi (163 bar)

2242 psi (155 bar)

2239 psi (154 bar)

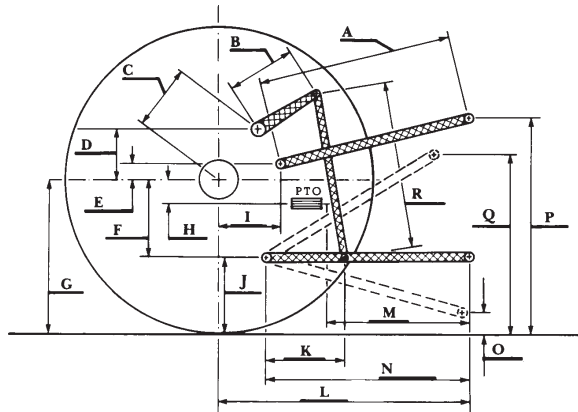
Power:

48.7 HP (36.3 kW)

50.1 HP (37.4 kW)

49.6 HP (37.0 kW)

## HITCH DIMENSIONS AS TESTED—NO LOAD



	inch	mm
A	28.5	725
B	20.5	520
C	21.7	551
D	18.9	480
E	7.3	185
F	14.4	365
G	37.4	950
H	3.5	90
I	20.7	525
J	23.0	585
K	29.3	745
L	50.2	1276
*L'	54.3	1378
M	27.0	687
N	39.4	1000
O	9.0	230
P	50.6	1284
Q	40.0	1015
R	44.3	1125

\*L' to Quick Attach ends



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Institute of Agriculture and Natural Resources  
University of Nebraska–Lincoln